

above the subalpine zone; and there are a few other Pyrenæan mosses wanting to the Alps*.

Two *Jungermannia* exceedingly common in Britain, *Lophocolea bidentata* and *heterophylla*, are all but absent from the Pyrenees; and two others, *Jungermannia barbata* and *Ptilidium ciliare*, great ornaments of our mountainous districts, are altogether wanting. The latter attains its southern limit in the north of Italy; it is distributed throughout middle and northern Europe, but grows in greatest luxuriance within the Arctic circle. (Conf. Wahlenberg and the accounts of our Northern voyagers.)

According to Wahlenberg, there are in Lapland, as in the Pyrenees, extensive forests of *Pinus Abies* and *P. sylvestris*, and both descend into the plain; the former cease at the altitude of 800 feet and the latter at 1200 feet, indicating respectively the upper limits of the "regio sylvatica" and the "regio subsylvatica." But in the Pyrenees these trees ascend proportionally far higher than in Lapland; and that they do not occupy the same climatal zones we shall see by comparing the positions of a few mosses common to both countries. In the Pyrenees, *Tortula tortuosa*, *Bryum crudum*, *Didymodon capillaceus* and *Dicranum virens* are found in the region of coniferous trees, and are rarely seen above it; but these are precisely species mentioned by Wahlenberg as characteristic of his "Alpes inferiores," which are above the region even of the birch ("regio subalpina, Wahl."), and are characterized by the presence of *Betula nana*, *Diapenzia lapponica* and *Silene acaulis*. Yet the comparative altitudes attained by the mosses in the Pyrenees and in Lapland accord very nearly, and the species which ascend highest in the one for the most part do the same also in the other. Hence the zone occupied by a moss common to both has probably in both the same average æstival temperature.

[To be continued.]

XI.—*Algæ Orientales*:—*Descriptions of new Species belonging to the genus Sargassum.* By R. K. GREVILLE, LL.D. &c.†

[Continued from vol. ii. p. 434.]

[With a Plate.]

WIGHTIANÆ.

10. *Sargassum porosum* (nob.); caule cylindræo, brevissimo, muricato, ramis planis; foliis ovato-oblongis, subundulatis, inciso-

* The number of species which I have found in the Pyrenees new to the flora of France is considerable; but I cannot give a correct list of them, as I have not the dates of several species discovered in the Alps and Jura and nearly contemporaneously in the Pyrenees.

† Read before the Botanical Society of Edinburgh 14th Dec. 1848.

dentatis, uninerviis; vesiculis sphaericis breviter petiolatis; receptaculis minutis, axillaribus, cylindraceis, oblongis, inermibus, subracemosis.

Hab. in mari Peninsulæ Indiæ Orientalis; Shuter (1827), Wight.

Root an expanded cartilaginous disc. *Stem* cylindrical, very short (in the only specimen I possess scarcely half an inch), about the thickness of a blackbird's quill, muricate. *Primary branches* few, 12–18 inches or more long, simple or sparingly divided, flat, a line or more broad, giving off the secondary branches in a distichous manner at intervals of about half an inch; these are from 3 to 6 inches long, and closely set with fruit-bearing ramuli likewise distichously arranged, and from half an inch to an inch in length. *Leaves*; those of the young primary branches, especially near the base, an inch long, ovate-oblong, sometimes ovate-lanceolate, somewhat undulate, deeply, and very irregularly inciso-dentate; those on the secondary branches half the size above-mentioned, and those accompanying the fructification minute and somewhat cuneate; all furnished with a slender nerve becoming faint and disappearing before reaching the apex, and with abundance of oval pores. *Vesicles* spherical, on stalks scarcely a line long; those accompanying the leaves on the young primary branches considerably larger than the seed of *Lathyrus odoratus*; those on the smaller branches and those intermixed with the receptacles much less. *Receptacles* axillary, about a line long, cylindraceous, linear-oblong, obtuse, unarmed, forming irregularly divided clusters. *Colour* a rich red-brown, the younger leaves paler and somewhat translucent. *Substance* membranaceous, slightly rigid when dry.

This species is allied to *Sargassum incisifolium*, Ag., found at the Cape of Good Hope, but differs in the entire receptacles besides other characters. In an old state the branches lose their leaves and seem covered with the little tufted racemes.

The specimen which I possess from Dr. Shuter was kindly communicated by Sir W. J. Hooker.

11. *Sargassum elegans* (nob.); caule filiformi, teretiusculo, ramosissimo; foliis lineari-oblongis, obtusis, laciniato-dentatis, inferne oblique attenuatis; vesiculis parvulis, sphaericis; receptaculis lineari-oblongis, subcompressis, apicem versus dentatis, racemosis.

Wight in herb. no. 15.

Hab. in mari Peninsulæ Indiæ Orientalis; Wight.

Plant probably between 1 and 2 feet long; the specimen before me being fully 12 inches of the upper extremity, the whole of which bears evidence of having been covered with branches. *Root* I have not seen. *Stem*, or probably more correctly *primary branch*, filiform, about double the thickness of a hog's bristle,

giving off spreading branches 3–4 inches long, at intervals of half an inch, which become gradually shorter upwards, thickly covered with leaves, vesicles and receptacles. *Leaves* linear-oblong, or, sometimes, oblong-lanceolate, nearly three-quarters of an inch in length, 2–3 lines broad, obliquely attenuated at the base into a very slender petiole, sharply inciso-dentate, or even laciniate, furnished with a delicate nerve and oval pores. *Vesicles* numerous, spherical, the largest not half the size of the seed of *Lathyrus odoratus*, most of them as small as an ordinary pin's head, often apiculate, and the apiculus excentric, furnished with a few papilliform pores, and supported on a little compressed stalk not a line in length. *Receptacles* axillary, cylindraceous or subcompressed, oblong or somewhat club-shaped, sharply toothed, and forming little racemose tufts about a line and a half long. *Colour* dull reddish brown. *Substance* somewhat membranaceous and slightly diaphanous.

A very beautiful species. When dry, the laciniate teeth of the leaves give them quite a fringed appearance.

12. *Sargassum brevifolium* (nob.); caule teretiusculo, muricato; foliis parvulis, obovatis, dentatis, uninerviis; vesiculis minutis, sphaericis; receptaculis filiformibus, elongatis, racemosis. Wight in herb. no. 20.

Var. β; foliis laciniato-dentatis, in petiolo longiore attenuato. An species distincta?

Wight in herb. no. 10.

Hab. in mari Peninsulæ Indiæ Orientalis; Wight.

Root I have not seen. *Stem* (or *primary branch*?) probably 2 feet long or more; but only fragments are in my possession; cylindraceous, somewhat muricate. *Branches* 4 or 5 inches long, thickly clothed with the fructiferous ramuli, which are not more than half an inch in length. *Leaves*; those on the main branches I have not seen; those on the secondary branches, from the axils of which the clusters of receptacles and vesicles arise, are about a third of an inch long, more or less obovate, remotely dentate, rounded at the end, furnished with pores and a nerve which soon becomes rather faint and disappears below the summit. *Vesicles* spherical, numerous, the size of a large pin's head, having prominent pores, supported on filiform stalks half a line in length, and arising from the lower ramifications of the raceme. *Receptacles* numerous, filiform, elongated, forming much-divided racemes from a quarter to half an inch long. The receptacles are not unfrequently foliaceous towards their upper extremity, in which case they resemble linear leaves toothed at the margin, and are furnished with a nerve and pores. *Colour* reddish black when dry. *Substance* cartilaginous.

In variety β . the stem is more muricate. The leaves smaller, and besides being inciso- or laciniato-dentate, they are attenuated more gradually into a longer and more slender stalk. The receptacles are smaller, but present no other perceptible difference.

In the absence of more perfect specimens, and indeed of a larger series, the present description must necessarily be imperfect. The plant I have considered as a doubtful variety bears a great resemblance to the other, yet I might perhaps with some reason have raised it to the rank of a species; the striking similarity of the fructification alone deterred me. Should it prove distinct, it may bear the name of *S. pergracile*.

EXPLANATION OF PLATE IV.

Sargassum porosum.

- Fig. 1. Leaves and vesicles on the young plant.
 — 2. One of the lower leaves.
 — 3. Leaves and vesicles on the fertile branches.
 — 4. Leaves of the ramuli with receptacle.
 — 5. Portion of a branch with old racemes, after the leaves and vesicles have disappeared. The two last magnified.

Sargassum elegans.

- Fig. 1. A branch.
 — 2. Leaf from ditto.
 — 3. Raceme.
 — 4 & 5. Raceme.
 — 6. Vesicles. 2, 4, 5 and 6 magnified.

Sargassum brevifolium.

- Fig. 1. Lower portion of a branch.
 — 2. Raceme of fructification, with vesicles.
 — 3. Raceme, vesicles and leaf.
 — 4. Vesicle.
 — 5. Portion of var. β .
 — 6. Leaves of ditto. 3, 4 and 6 magnified.

XII.—*Observations on the Minute Structure and Mode of Contraction of Voluntary Muscular Fibre; being the abstract of a Paper read before the Royal Medical Society, Edinburgh, December 15th, 1848.* By W. MURRAY DOBIE, F.B.S.E.

[With a Plate.]

THE structure of cross-striated muscle is a subject which has more or less engaged the attention of minute anatomists, since the first introduction of the microscope as a means of histological research.

There is perhaps no animal texture as to the nature of which more contrary opinions have been held, or more conflicting state-